FAS – Office of Global Analysis (OGA)
United States Department of Agriculture (USDA)
International Operational Agriculture Monitoring Program

USDA Foreign Agricultural Service

Afghanistan: Crop Progress Report

MY 2009/10

February Monthly Report **February 26th, 2008**

1. Afghanistan's grain production consists of irrigated and rainfed cropland. Rainfed crop production typically varies with seasonal precipitation whereas irrigated cropland relies on snowmelt in the spring in addition to rainfall during its growth cycle. Although 90% of irrigated and rainfed cropland is planted during the winter season (October to December), some regions also produce a spring season crop. Approximately 80% of Afghanistan's total grains production is wheat (Appendix).

2. The current winter grain (wheat) outlook for MY 2009/10 Afghanistan is slightly improved over last year's drought decimated harvest, while overall production potential remains well-below normal.

   Rainfed winter grain production prospects are only slightly improved over last year's severely drought reduced crop (MY 2008/09). Although season-to-date rainfall has been near or above normal in most of the regions, NDVI[1] time-series data, compared to relatively normal years, suggests that MY 2009/10 rainfed grain production is below normal. It is possible that last years severe drought coupled with dry autumn conditions led to a decline in rainfed winter grain plantings. Significantly lower crop area would partially explain the difference in crop vegetation present in late February 2009.

   Irrigated grain production (MY 2009/10) appears to have improved production potential than last year's drought affected crop and similar or slightly above normal potential when compared to past years; the exception being the North Region. Importantly, provinces in the North Region account for roughly 20% of the total irrigated wheat area; therefore, crop problems specific to this region can significantly impact overall national production.

3. Season-to-date and monthly cumulative precipitation for MY 2009/10 is near normal or better than normal for most of the rainfed and irrigated crop regions, except for portions of the Northwest, North, and Southwest Regions which collectively produce approximately 56 percent of the national wheat crop (Figure 1). Irrigated cropland areas in particular have received above-normal rainfall, which may explain the more favorable current crop vegetation development compared to last year in these areas (Figure 2).

4. Snow depth for the month of February is below the short-term average with highest snow cover in the east-central highlands (Figure 3). The lower snowpack in the central and western mountains is not an immediate problem; however it could portend lower than normal runoff in the spring months and lower overall irrigation supplies in these regions. Irrigated crops throughout Afghanistan are

[1] Normalized Difference Vegetation Index (NDVI) is related to vegetation abundance and vigor.

particularly reliant on spring and early summer snowmelt for late vegetative and reproductive growth phases. Should irrigation supplies be significantly reduced, either through rapid early melt as occurred last year or through scanty availability from insufficient snowpack, crop yield potential will be negatively affected. Spring rainfall levels are also very important, and should rainfall in coming months be deficient, then this could exacerbate the problem of lower snow coverage and lower overall moisture availability during crucial growing stages of the grain crop.

5. NDVI[2] for MY 2009/10 was slightly higher for rainfed cropland in the Northeast and small parts of the North region in late February when compared to the previous drought year of MY 2008/09 (Figure 4). However, when compared to relatively normal crop seasons such as MY 2005/06 and MY 2007/08, change analysis revealed significant decreases in NDVI for rainfed cropland (Figures 5-6). This implies that some crops are already showing better production prospects than last year, though they are not as good as in previous years. It should be noted that seasonal conditions through early June will determine whether or not the national rainfed crop fares the same, better or worse than last year.

   A similar analysis applied to irrigated cropland showed significantly higher NDVI compared to the previous year in late February and similar or slightly higher NDVI compared to MY 2005/06 and MY 2007/08. The exceptions are the provinces of the North region, roughly 20% of irrigated wheat area and a significant national production region. (Figures 7-9).

6. NDVI change detection analysis using moderate resolution AWiFS IRS-P6 and Landsat ETM+ collected on February 7th, 2009 and February 7th, 2008 provided detailed validation of irrigated crop conditions in the province of Farah. Farah, however is a minor producing region, typically contributing 2 percent of the national wheat crop. Wheat is primarily irrigated in Farah and the current cropland NDVI was 78.4% higher than the previous year (Figure 10).

[2] Missing data are the result of heavy snow cover. MY 2006/07 was excluded due to a high proportion of missing data.

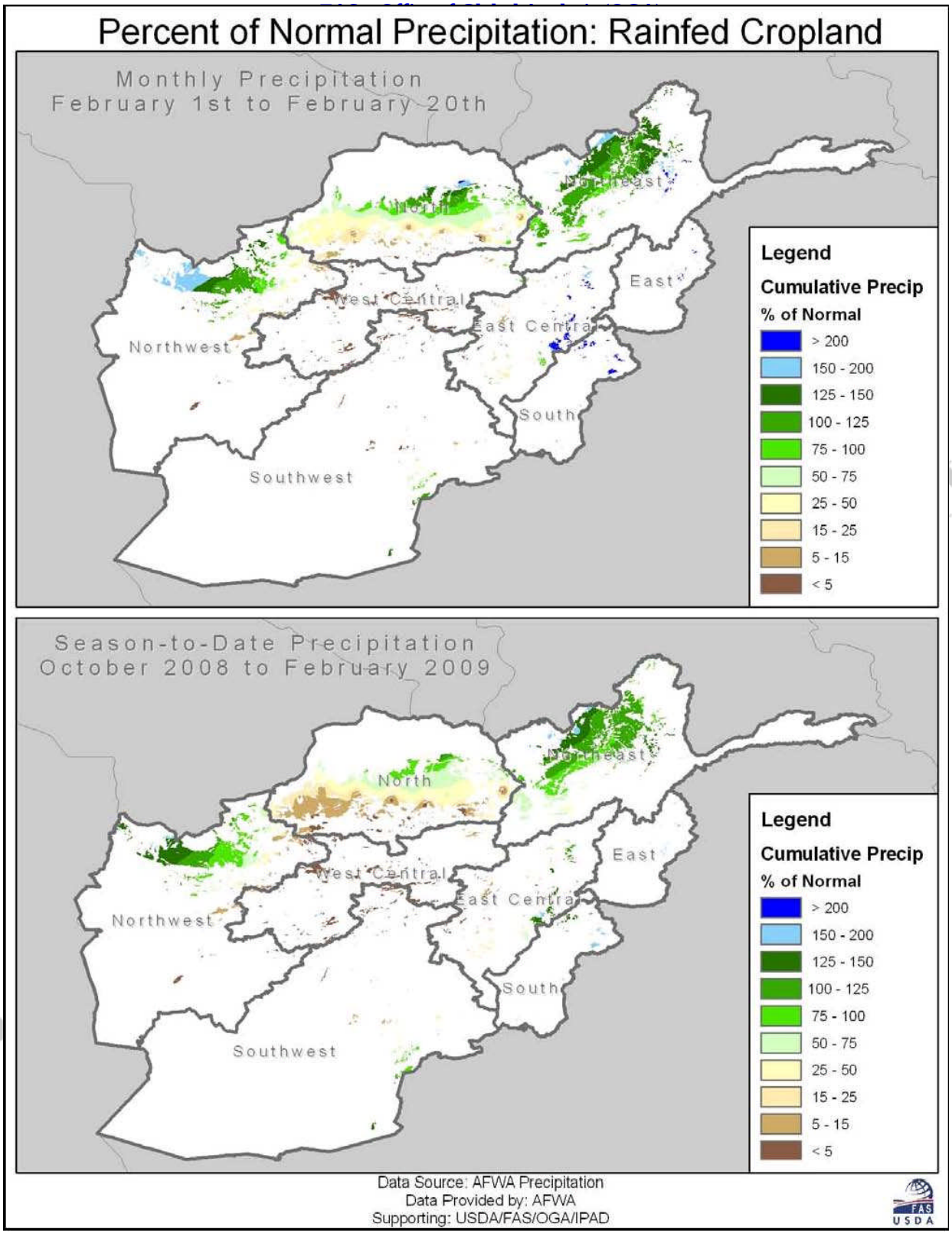


Figure 1: Season-to-date and monthly cumulative precipitation for rainfed cropland.

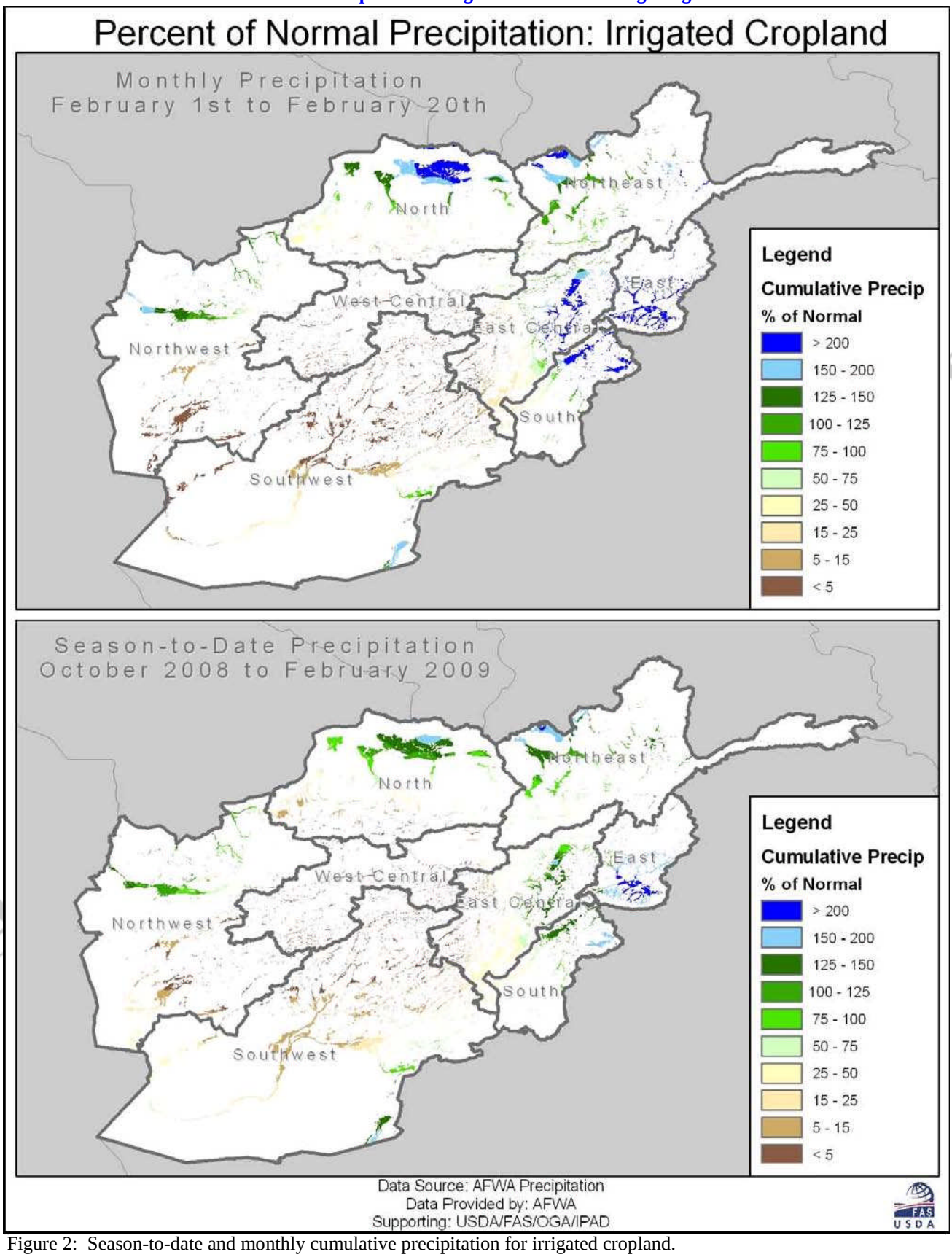


Figure 2: Season-to-date and monthly cumulative precipitation for irrigated cropland.

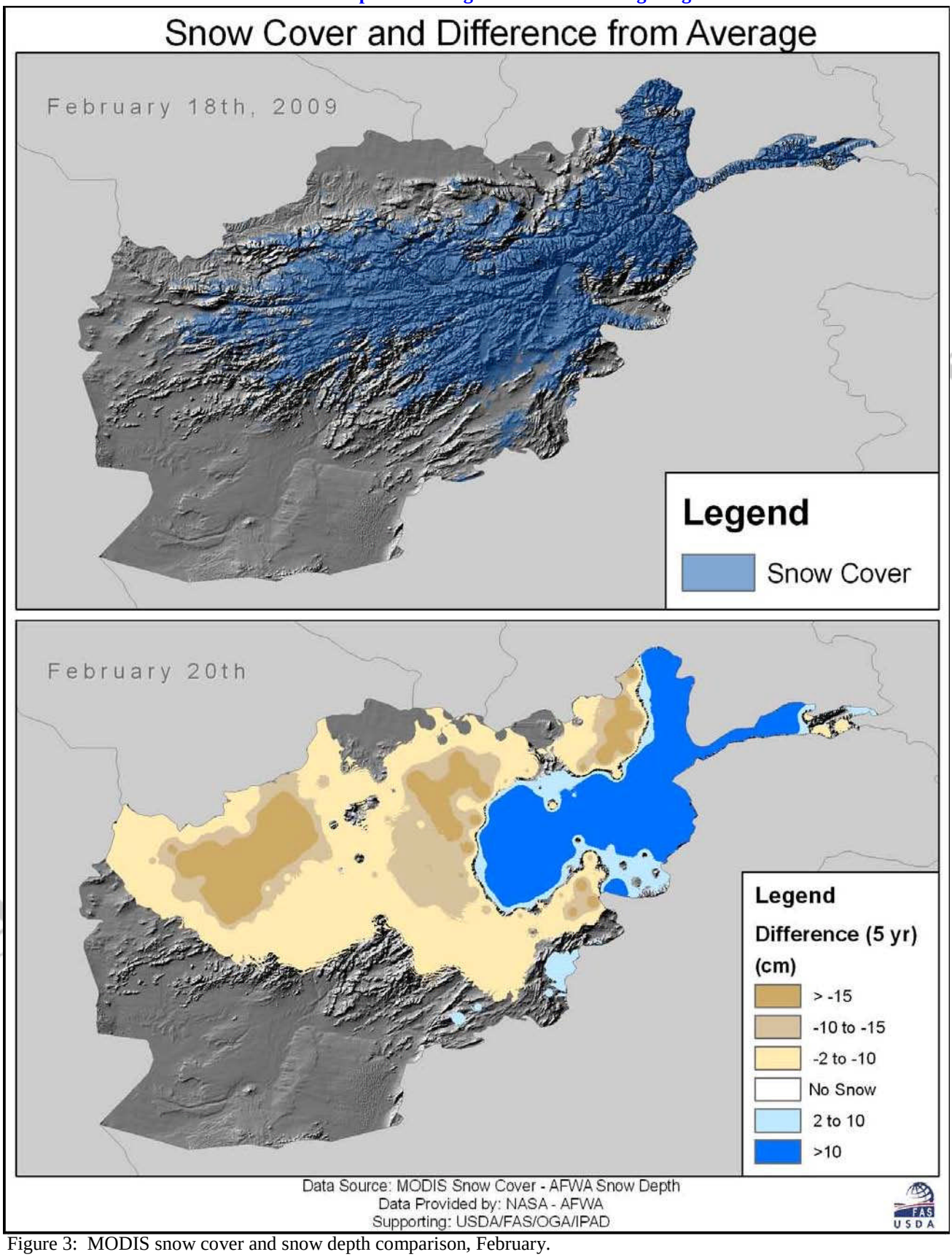


Figure 3: MODIS snow cover and snow depth comparison, February.

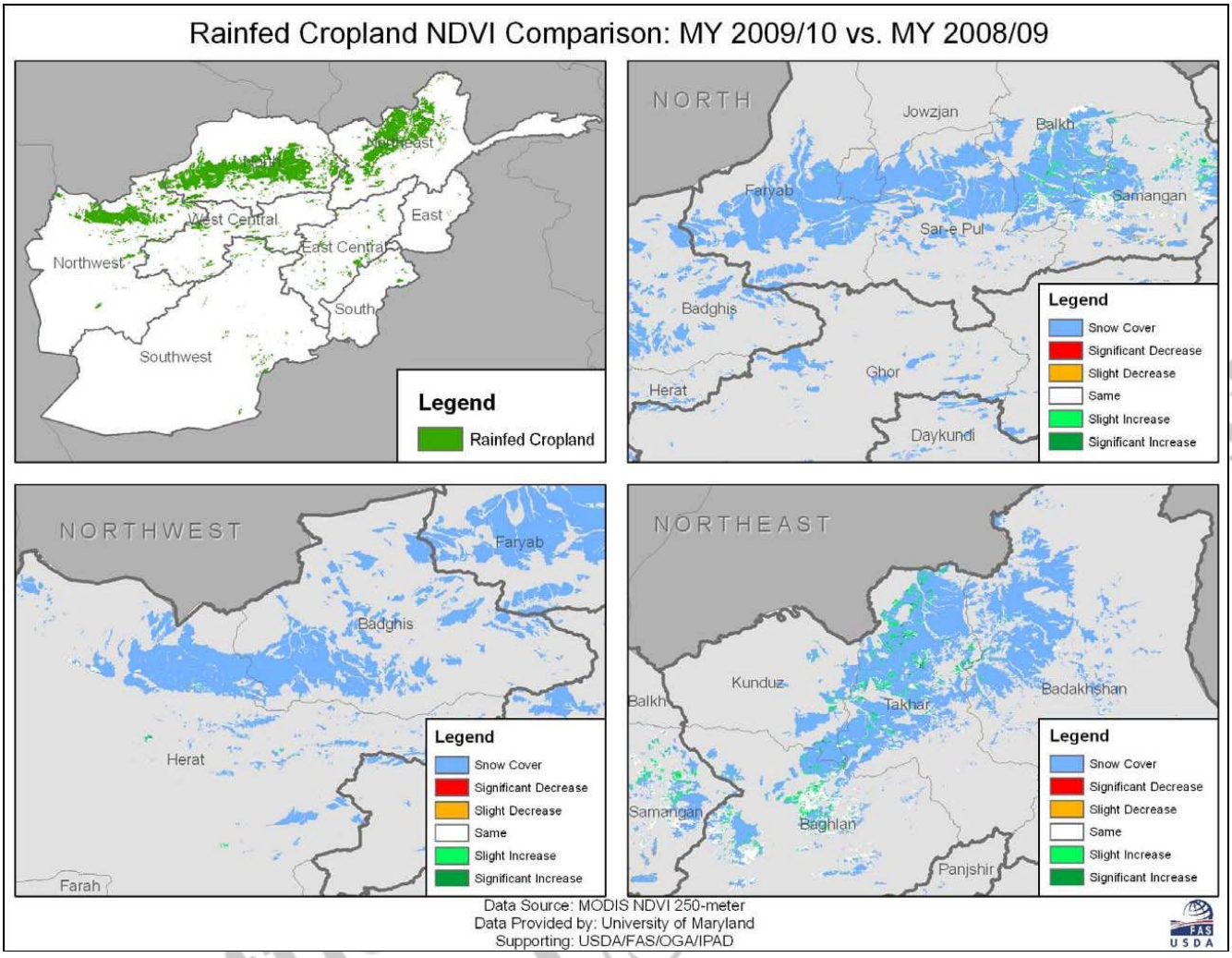


Figure 4: Rainfed NDVI comparison map: MY 2009/10 vs. MY 2008/09.

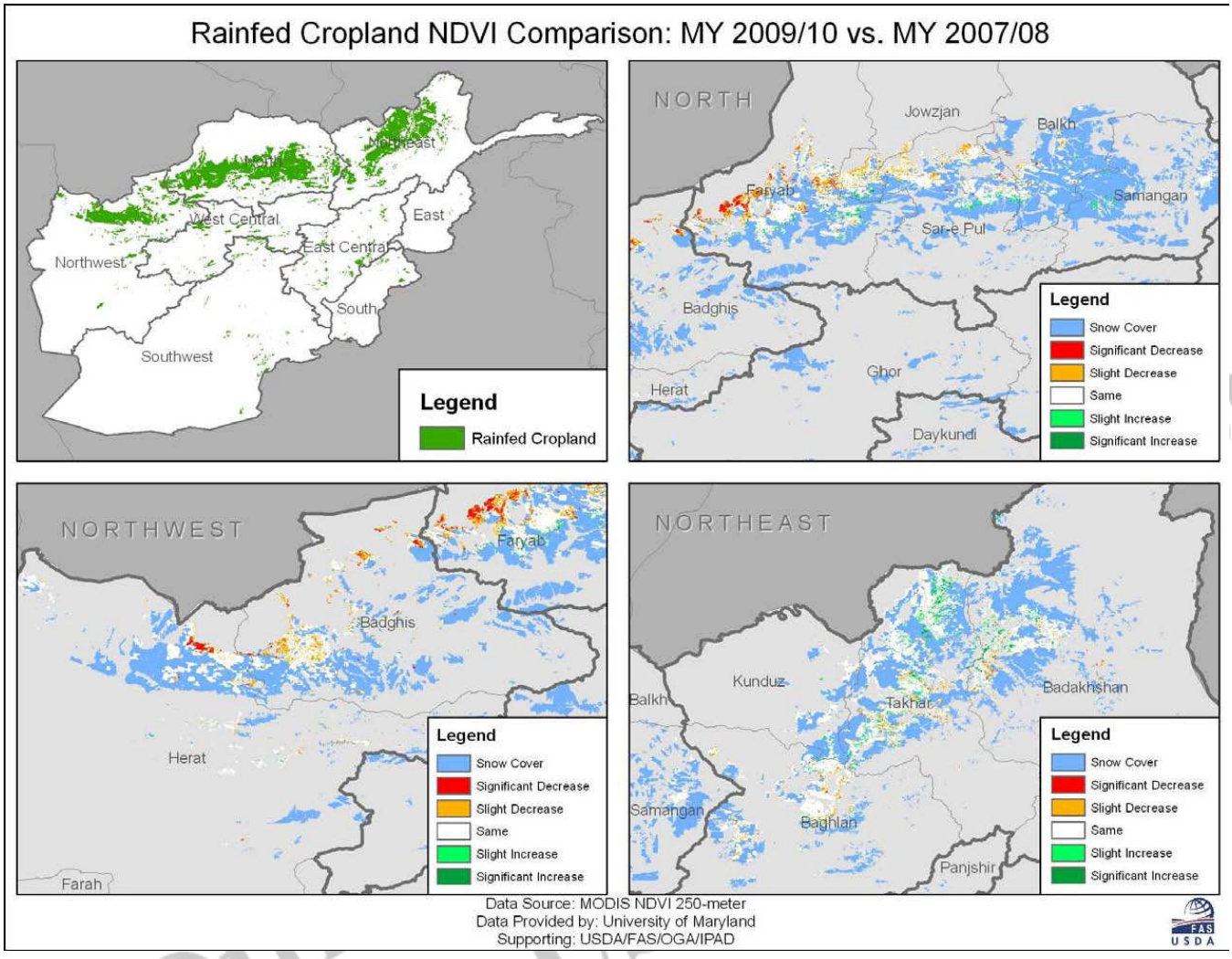


Figure 5: Rainfed NDVI comparison map: MY 2009/10 vs. MY 2007/08.

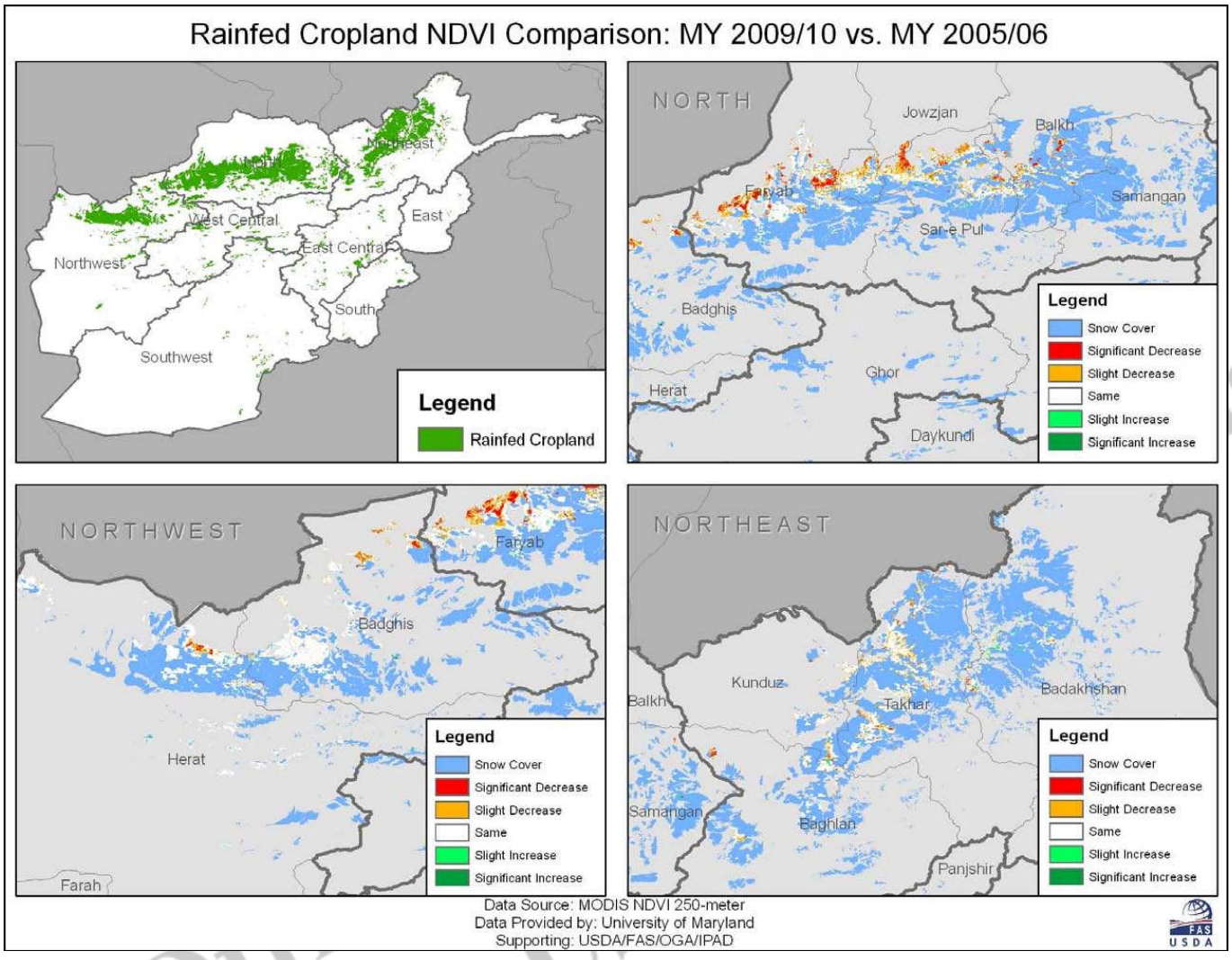


Figure 6: Rainfed NDVI comparison map: MY 2009/10 vs. MY 2005/06.

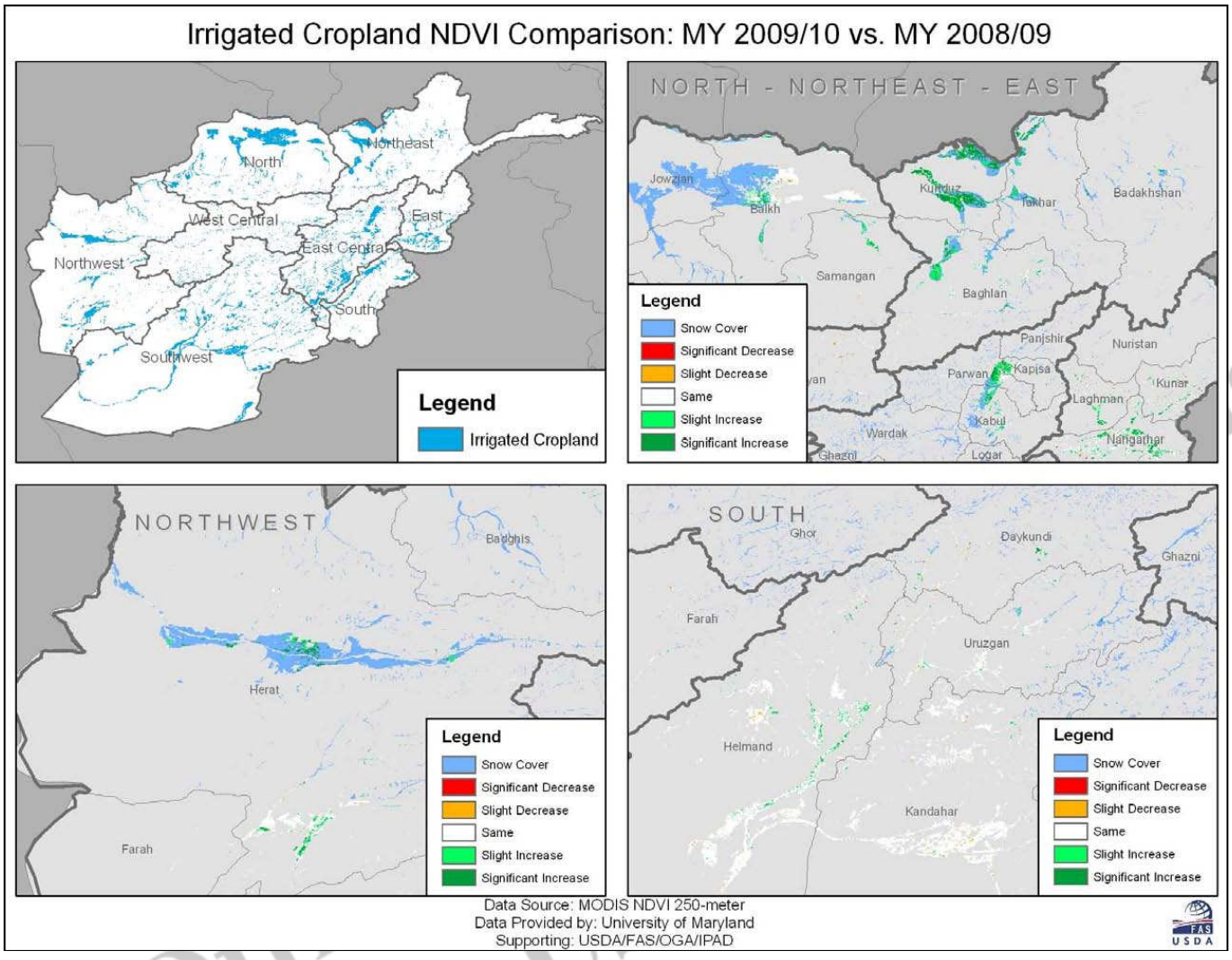


Figure 7: Irrigated NDVI comparison map: MY 2009/10 vs. MY 2008/09.

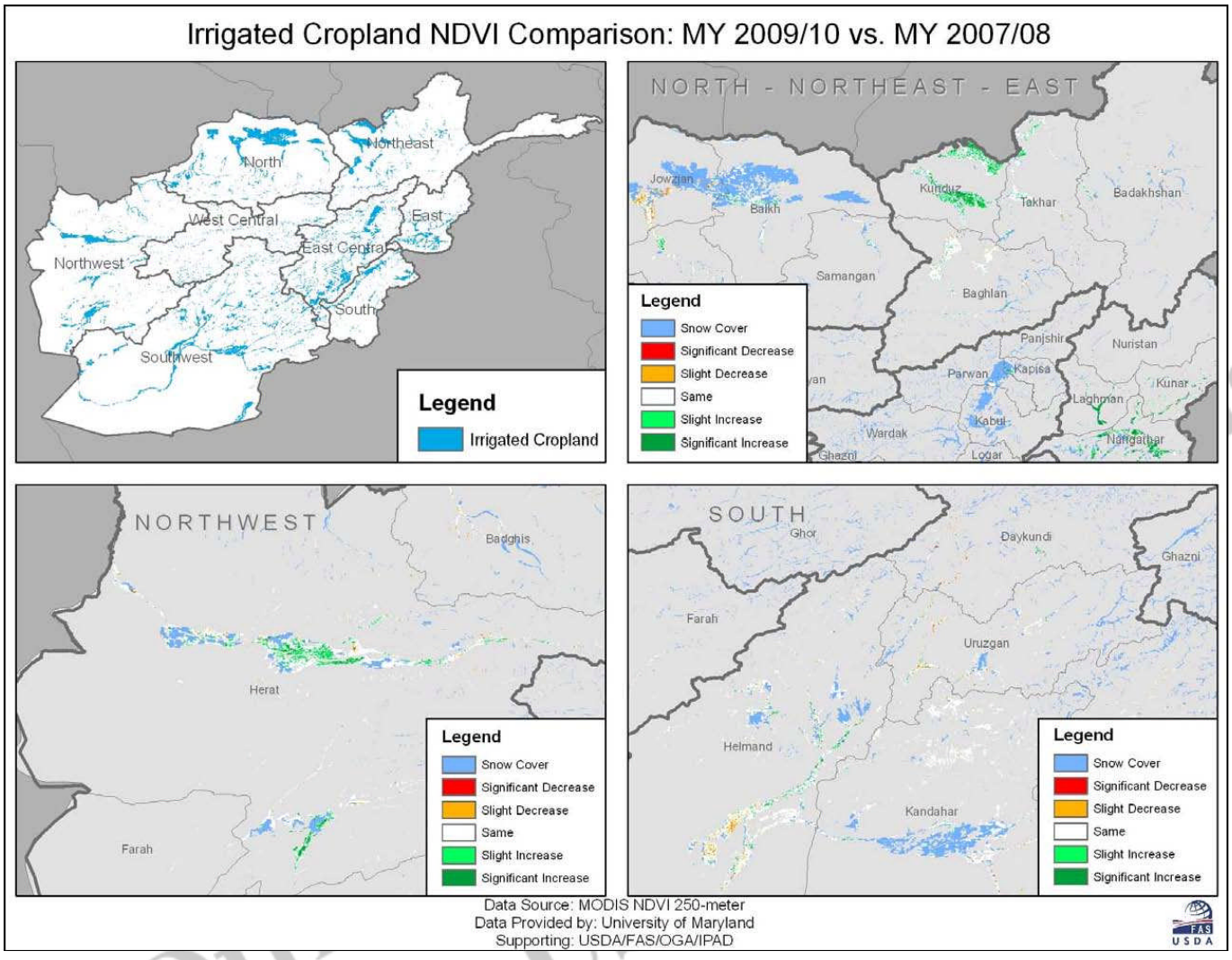


Figure 8: Irrigated NDVI comparison map: MY 2009/10 vs. MY 2007/08.

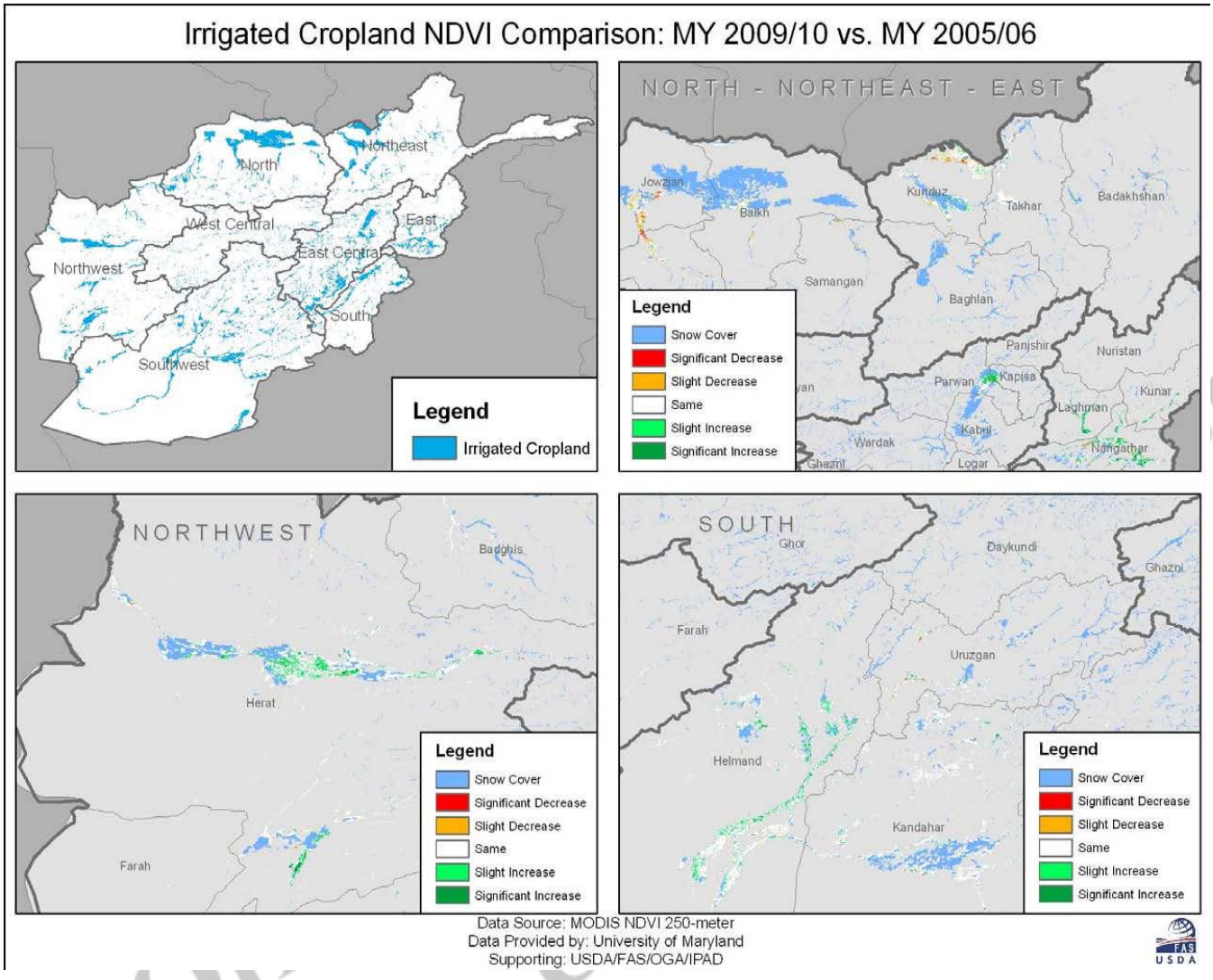


Figure 9: Irrigated NDVI comparison map: MY 2009/10 vs. MY 2005/06.

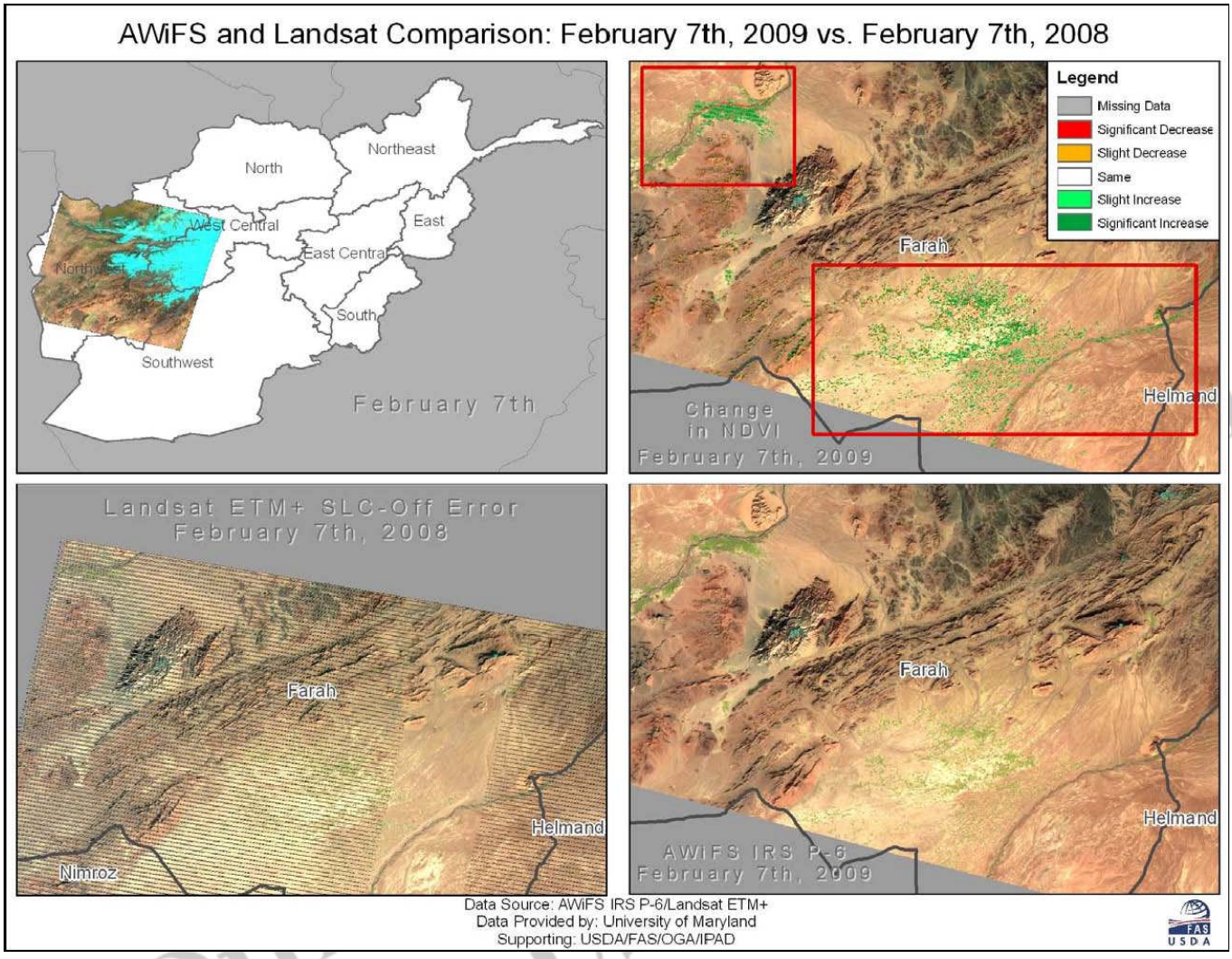
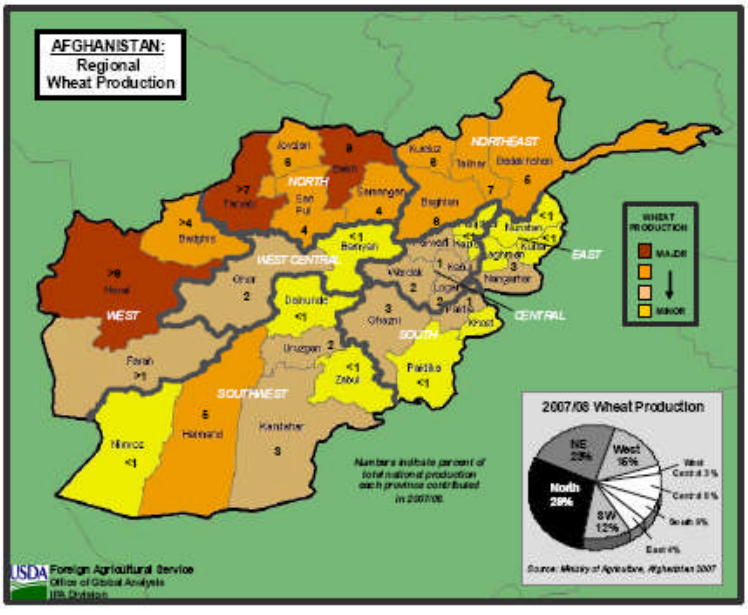
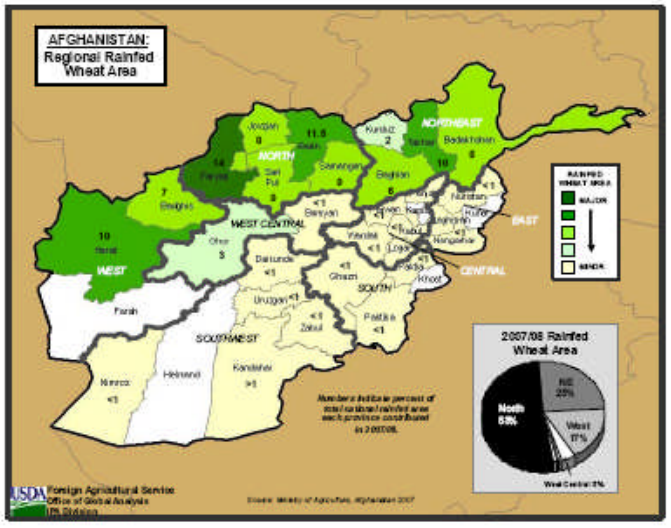
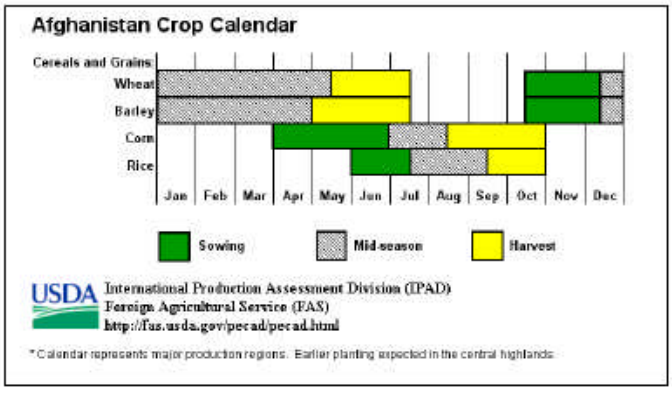


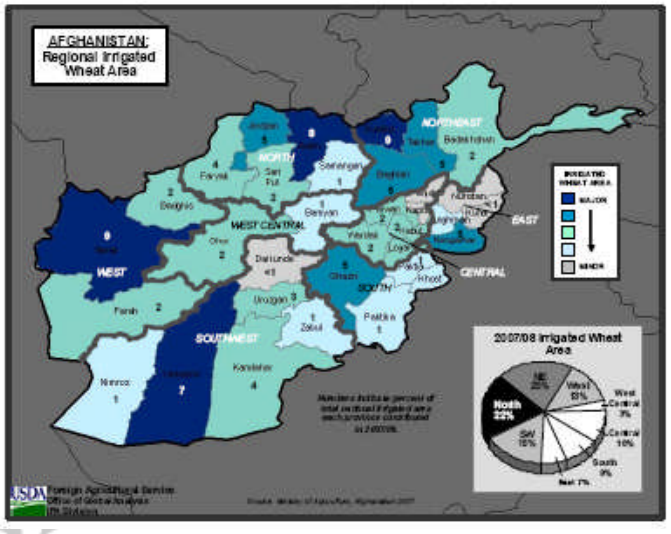
Figure 10: Irrigated NDVI comparison map of AWiFS and Landsat ETM+: MY 2009/10 vs. MY 2008/09.

APPENDIX









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